

What is claimed is:

- 1. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure comprising:**

a first member having an outer surface generally configured in the shape of a frustum of right cone having a circular base portion and a circular top portion with said top portion diameter less than said base portion diameter, and said first member being operable for insertion into a sinus region of the patient's sinus tarsi; and

a second member, axially connected to the circular top portion of the first member and having an outer surface generally configured in the shape of a cylinder and having an outer diameter approximately equal to the diameter of the top portion of said first member and being operable for insertion into a canalis tarsi region of the patient's sinus tarsi, wherein said first and second members maintain said sinus tarsi in an anatomically correct alignment and minimize a tendency for abnormal motion between the patient's talus and calcaneus in the patient's ankle bone structure.

2. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 1 and further comprising:

a third member axially connected to said base portion of said first member, said third member having an outer surface generally configured in the shape of a cylinder with an outer diameter approximately equal to the diameter of the base portion of said first member and being operable for insertion into a sinus region of the patient's sinus tarsi.

3. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 2 wherein said third member further comprises:

at least one peripheral channel fashioned about said third member outer surface to engage surrounding tissue and permit fibrous tissue ingrowth to anchor said implant within the patient's sinus tarsi.

4. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 3 wherein said at least one peripheral channel further comprises:

at least a first and a second peripheral channel being axially spaced along the outer surface of said third member to engage surrounding tissue and permit

fibrous tissue ingrowth to anchor said implant within the patient's sinus tarsi.

5. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 1 wherein said second member further comprises:

a channeled surface fashioned in said second member outer surface to engage surrounding tissue and permit fibrous tissue ingrowth to anchor said second member within the canalis tarsi region of the patient's sinus tarsi.

6. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 5 wherein said channeled surface further comprises:

a continuous thread fashioned in said second member outer surface to engage surrounding tissue and permit fibrous tissue ingrowth to anchor said second member within the canalis tarsi region of the patient's sinus tarsi.

7. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 6 wherein said implant further comprises:

a lateral end fashioned with a recess configured to accept a tool so that when the tool is inserted into the recess the tool is operable to advance the implant into a proper position.

8. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 1 wherein said sinus tarsi implant is composed of a composition comprising:

a medical grade polymer suitable for implantation in the patient without adverse reactions.

9. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 1 wherein said sinus tarsi implant is composed of a composition comprising:

a polymer selected from the group consisting of high molecular weight polyethylene, polyoxymethylene, DELRIN, polyetheretherketone (PEEK), polyetherketoneketone (PEKK), polymethylmethacrylate (PMMA) polytetrafluoroethylene (PTFE) and DELRIN AF.

10. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 1 wherein said implant further comprises:

a longitudinal bore traversing the entire length of the implant along a central longitudinal axis and fashioned to allow placement of the implant on a guide to facilitate proper surgical implantation.

11. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 1 and further comprising:

said second member outer diameter is in a range from 0.6 cm to 1.1 cm.

12. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure comprising:

a first member having an outer surface generally configured in the shape of a right conical frustum having a base portion and a top portion, and being operable for insertion into a sinus region of the patient's sinus tarsi;

a second member, axially connected to the top of said first member and having an outer surface generally configured in the shape of a cylinder and having an outer diameter approximately equal to the top portion of said first

member and being operable for insertion into a canalis tarsi region of the patient's sinus tarsi; and

a third member, axially connected to the base of said first member and having an outer surface generally configured in the shape of a cylinder and being operable for insertion into the sinus region of the patient's sinus tarsi;

wherein said first, second and third members maintain said sinus tarsi in an anatomically correct alignment and minimize a tendency for abnormal motion between the patient's talus and calcaneus thereby correcting deformities in the patient's ankle bone structure.

13. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 12 wherein said third member further comprises:

at least one peripheral channel fashioned about said third member outer surface to engage surrounding tissue and permit fibrous tissue ingrowth to anchor said implant within the patient's sinus tarsi.

14. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 12 wherein said second member further comprises:

a channeled surface fashioned in said second member outer surface to engage surrounding tissue and permit fibrous tissue ingrowth to anchor said second member within the canalis tarsi region of the patient's sinus tarsi.

15. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 14 wherein said channeled surface further comprises:

a continuous thread fashioned in said second member outer surface to engage surrounding tissue and permit fibrous tissue ingrowth to anchor said second member within the canalis tarsi region of the patient's sinus tarsi.

16. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 15 wherein said implant further comprises:

a recess fashioned within a lateral end of said implant and being configured to accept a tool so that when the tool is inserted into the recess the tool is operable to advance the implant into a proper position.

17. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 12 wherein said sinus tarsi implant is composed of a composition comprising:

a medical grade polymer suitable for implantation in the patient without adverse reactions.

18. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 12 wherein said sinus tarsi implant is composed of a composition comprising:

a polymer selected from the group consisting of high molecular weight polyethylene, polyoxymethylene, DELRIN, polyetheretherketone (PEEK), polyetherketoneketone (PEKK), polymethylmethacrylate (PMMA) polytetrafluoroethylene (PTFE) and DELRIN AF.

19. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 12 and further comprising:

a longitudinal bore traversing the entire length of the implant along the implant longitudinal central axis and fashioned to allow placement of the implant on a guide to facilitate proper surgical implantation.

20. A sinus tarsi implant for use in correcting anatomical alignment of a patient's ankle bone structure as defined in claim 12 and further comprising:

said second member outer diameter is in a range from 0.6 cm to 1.1 cm.